

Granite Creek culvert removal and fish passage
FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

Please fill in the highlighted areas
all sections (IA, IB, IC, etc.) must be addressed or the application will be considered invalid

I. APPLICANT INFORMATION

- A. Applicant Name: Clark Fork Coalition
- B. Mailing Address: 140 S 4th st W #1
- C. City: Missoula State: MT Zip: 59801
Telephone: 406-542-0539 ext 209 E-mail: jed@clarkfork.org
- D. Contact Person: Jed Whiteley (Clark Fork Coalition)
Address if different from Applicant: _____
City: _____ State: _____ Zip: _____
Telephone: _____ E-mail: _____
- E. Landowner and/or Lessee Name (if other than Applicant): United States Forest Service-Lolo National Forest
Mailing Address: 24 Fort Missoula Rd
City: Missoula MT State: MT Zip: 59804
Telephone: 406-329-3765 E-mail: dwalters@fs.fed.us

II. PROJECT INFORMATION*

- A. Project Name: Granite Creek Fisheries Improvement Project
River, stream, or lake: Granite Creek and tributaries
Location: Township: 11N Range: 24W Section: 1,3,7,12,15, 27
Latitude: 46.7155 Longitude: -114.5928 *within project (decimal degrees)*
County: Missoula
- B. Purpose of Project:

The Granite Creek Fisheries Improvement Project is aimed at increasing the quantity and quality of spawning and cold water habitat available to native trout through the remediation of problematic stream crossings, removal of fish passage barriers and sediment mitigation within the Granite Creek watershed.
- C. Brief Project Description: _____

Granite Creek culvert removal and fish passage

In 2009 the Lolo National Forest acquired over 32 square miles of forest lands in Upper Lolo Creek that were formerly under Plum Creek Timber Co. (PCTC) ownership through the Montana Legacy Project. Upper Lolo Creek is significantly impacted by sediment generated by the extensive forest road network and numerous failing culverts, and DEQ's Upper Lolo Sediment TIE sets goals of 33% - 65% load reductions from forest roads. The PCTC lands created a checkerboard pattern of land ownership in the Upper Lolo basin and, until the Montana Legacy Project was finalized, the Lolo National Forest was only able to carry out fish passage and sediment reduction restoration on every other square mile of the area (insert map showing just land ownership). This project is a continuation of that long term restoration effort in upper Lolo Creek that focuses on removing culverts that act as fish passage barriers and hydrologic constraints, as well as reclaiming non-essential forest roads on the Legacy lands that add sediment to the Upper Lolo Creek system. This effort started in 2006 and we have already decommissioned over 113 miles of forest roads, removed 51 major culverts and upgraded 10 culverts to bottomless arches or bridges for enhanced fish passage.

Large scale, long term project boundaries encompass the upper watershed of Lolo Creek and include the following tributaries: East Fork Lolo Creek, Lost Park Creek, Lee Creek, West Fork Lolo Creek, Granite Creek and North Creek. All of these streams are identified as restoration priorities in the Forest Service's 2013 "Conservation Strategy for Bull Trout on USFS lands in Western Montana". This proposal addresses limiting factors identified on USFS property within the Granite Creek watershed.

The Granite Creek Fisheries Improvement Project will focus on removing undersized culverts that act as long term failure risks, disrupt natural hydrologic function, facilitate sediment delivery and in many cases block native fish migration. At a larger scale, decommissioning nonessential forest roads reduces cumulative sediment impacts to adjacent streams. Sites where culverts are removed will be re-countoured to match current stream geomorphology and large woody debris and boulders will be placed for grade control. Decommissioning of roads will include up to 100% recontouring (closure level 5) of topography, slash placement, and revegetation as needed. Measurable objectives for the project include completing 100% recontouring of 8.5 miles of forest roads and the removal of at least 8 culverts, monitoring stream cross-sections to assess project effectiveness and conducting outreach to inform community members and government agencies about the project.

D. Length of stream or size of lake that will be treated: 15 miles

E. Project Budget:

Grant Request (Dollars): \$ 54,188.00

Contribution by Applicant (Dollars): \$ _____ In-kind \$ _____
(salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): \$ 108,396.80 In-kind \$ _____
(attach verification - See page 2 budget template)

Total Project Cost: \$ 162,396.80

F. Attach itemized (line item) budget – see template

- Granite Creek culvert removal and fish passage
- Attach **specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support and fish biologist support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete a *supplemental questionnaire*** (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).
- H. **Attach land management & maintenance plans that will ensure protection of the reclaimed area.**

III. PROJECT BENEFITS*

- A. What species of fish will benefit from this project?:

The project will benefit Westslope cutthroat trout, bull trout, mountain whitefish, brown trout, brook trout. Based on electrofishing data and genetic testing bull trout and Westslope cutthroat are native trout species that would benefit.

- B. How will the project protect or enhance wild fish habitat?:

Project objectives stress removal of fish passage obstructions and mitigation of acute and chronic sediment sources on a key tributary spawning and rearing area. Removing fish passage barriers will open up spawning habitat for wild trout in the watershed. The removal of the fish barriers will also allow wild fish access to cold water refuge during the low flow months of August-October. The removal of forest roads will reduce sediment, thereby enhancing wild fish habitat.

- C. Will the project improve fish populations and/or fishing? To what extent?:

Yes, the project is being implemented to improve watershed health and connectivity in a key tributary system at the headwaters of Lolo Creek. This stream network supports spawning/rearing habitat for native and non-native trout, and acts as a primary source of recruitment for the lower Bitterroot and middle Clark Fork River fisheries near Missoula.

- D. Will the project increase public fishing opportunity for wild fish and, if so, how?:

The entire project area lies on public land and is open to angling. Granite creek is an important spawning and rearing area for migratory wild trout from the lower Bitterroot River and Clark Fork River. Project activities are intended to increase opportunity for fish passage and enhance carrying capacity for trout in the long term. Even with the roads removed by the project there is public access throughout the project area.

- E. The project agreement includes a 20-year maintenance commitment. Please discuss your ability to meet this commitment.

The project will not require maintenance since roads and culverts will be removed and no new infrastructure will be installed.

- F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

Under sized and failing culverts along with unmaintained roads are causing aquatic habitat fragmentation and degradation in this area. Montana DEQ has listed Granite Creek as a sediment impaired stream. Included in DEQ's Improvement Strategies for this area are the following actions: "reclaim forest roads that are surplus to the needs of forest land managers" and "correct those priority fish passage barriers that are significantly affecting the connectivity of native fish habitats". This project will directly address these two causes of habitat degradation.

- G. What public benefits will be realized from this project?:

Granite Creek culvert removal and fish passage

Public benefits from this project will include: improved quantity and quality of aquatic habitat, improved water quality, increased fish numbers, enhanced fishing opportunities and an improved tourism economy.

H. Will the project interfere with water or property rights of adjacent landowners? (explain):

The project will not interfere with the water or property rights of adjacent landowners. The entire project will take place on USFS property

I. Will the project result in the development of commercial recreational use on the site?: (explain):

No, there is no planned development of commercial recreational use at the site of the project.

J. Is this project associated with the reclamation of past mining activity?:

No

Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Karen Kuehn

Date: 11/29/17

Sponsor (if applicable): _____

***Highlighted boxes will automatically expand.**

Mail To: Montana Fish, Wildlife & Parks
Fisheries Division
PO Box 200701
Helena, MT 59620-0701

E-mail To: Michelle McGree
mmcgree@mt.gov
(electronic submissions MUST be signed)

Incomplete or late applications will be rejected and returned to applicant.
Applications may be rejected if this form is modified.

*****Applications must be signed and received by the Future Fisheries Program Officer in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.*****

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

Both tables must be completed or the application will be returned

Both tables must be completed or the application will be returned.

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTION*	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FUTURE FISHERIES REQUEST	IN-KIND SERVICES**	IN-KIND CASH	TOTAL
Personnel***								
Survey	1	Final survey and mapping	\$10,000.00	\$ 10,000.00			10,000.00	\$ 10,000.00
Design	1	Final design	\$2,700.00	\$ 2,700.00			2,700.00	\$ 2,700.00
Engineering				\$ -				\$ -
Permitting	1	Env. Compliance	\$5,000.00	\$ 5,000.00			5,000.00	\$ 5,000.00
Oversight	300	hrs	\$55.00	\$ 16,500.00			16,500.00	\$ 16,500.00
				\$ -				\$ -
			Sub-Total	\$ 34,200.00	\$ -	\$ -	\$ 34,200.00	\$ 34,200.00
Travel								
Mileage	2240	miles	\$0.52	\$ 1,164.80			1,164.80	\$ 1,164.80
Per diem				\$ -				\$ -
			Sub-Total	\$ 1,164.80	\$ -	\$ -	\$ 1,164.80	\$ 1,164.80
Construction Materials****								
Straw mulch	2	acres	\$1,250.00	\$ 2,500.00	2,000.00		500.00	\$ 2,500.00
Restoration seed	25	acres	\$350.00	\$ 8,750.00			8,750.00	\$ 8,750.00
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
			Sub-Total	\$ 11,250.00	\$ 2,000.00	\$ -	\$ 9,250.00	\$ 11,250.00
Equipment and Labor								
Excavator	650	hrs	\$125.00	\$ 81,250.00	32,500.00		48,750.00	\$ 81,250.00
Dump truck	30	hrs	\$100.00	\$ 3,000.00	3,000.00			\$ 3,000.00
3/4 ton pickup& trailer-culvert disposal	50	hrs	\$100.00	\$ 5,000.00	5,000.00			\$ 5,000.00
Laborer	112	hrs	\$60.00	\$ 6,720.00	2,688.00		4,032.00	\$ 6,720.00
				\$ -				\$ -
				\$ -				\$ -
			Sub-Total	\$ 95,970.00	\$ 43,188.00	\$ -	\$ 52,782.00	\$ 95,970.00
Mobilization								
Mobilization	1	LS		\$ 20,000.00	9,000.00		11,000.00	\$ 20,000.00
				\$ -				\$ -

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			\$	-				\$	-
			\$	-				\$	-
			Sub-Total	\$	20,000.00	\$	9,000.00	\$	11,000.00
				\$	20,000.00	\$	9,000.00	\$	20,000.00
			TOTALS	\$	162,584.80	\$	54,188.00	\$	108,396.80
				\$	162,584.80	\$	54,188.00	\$	162,584.80

OTHER REQUIREMENTS:

All of the columns in the budget table and the matching contribution table MUST be completed appropriately or the application will be invalid. Please see the example budget sheet for additional clarification.

*Units = feet, hours, inches, etc. Do not use lump sum unless there is no other way to describe the costs.

**Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used for calculations). Describe here or in text.

Reminder: Government salaries cannot be used as in-kind match

***The Review Panel suggests that design and oversight costs associated with a proposed project not exceed 15% of the total project budget. If design and oversight costs are in excess of 15%, applications must include a minimum of two competitive bids for the cost of undertaking the project.

****The Review Panel recommends a maximum fencing cost of \$1.50 per foot. Additional costs may be the responsibility of the applicant and/or partners.

MATCHING CONTRIBUTIONS (do not include requested funds)

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL	Secured? (Y/N)
DEQ 319 Grant Program	\$ -	\$ 82,996.80	\$ 82,996.80	Y
Westslope Chapter Trout Unlimited	\$ -	\$ 17,400.00	\$ 17,400.00	Y
Lolo National Forest	\$ -	\$ 8,000.00	\$ 8,000.00	Y
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
TOTALS	\$ -	\$ 108,396.80	\$ 108,396.80	

Attachments Table of Contents

Attachment A...Maps

Attachment B...Planning Documents

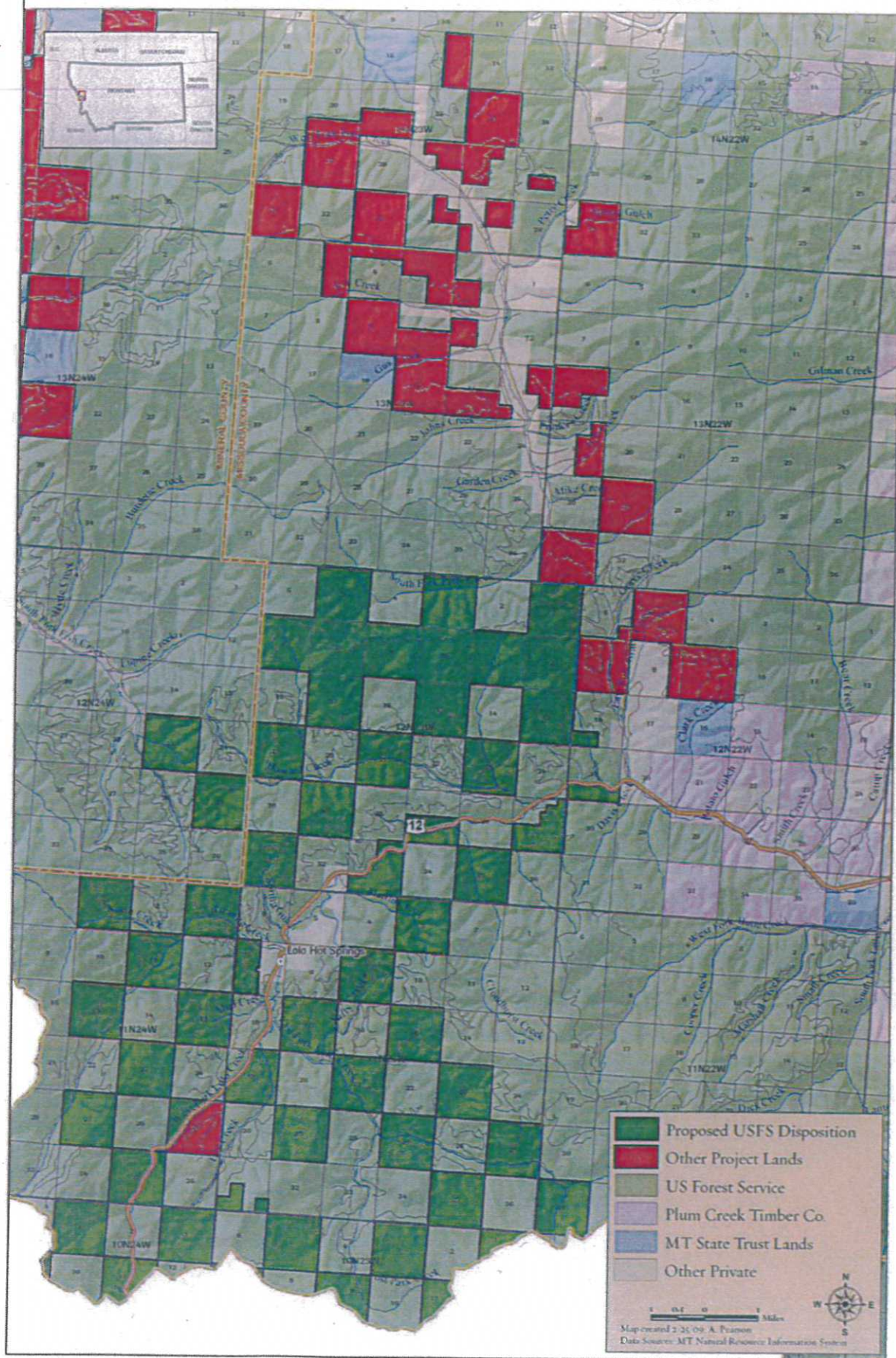
Attachment C...Preliminary Specs

Attachment D...Letters of Support

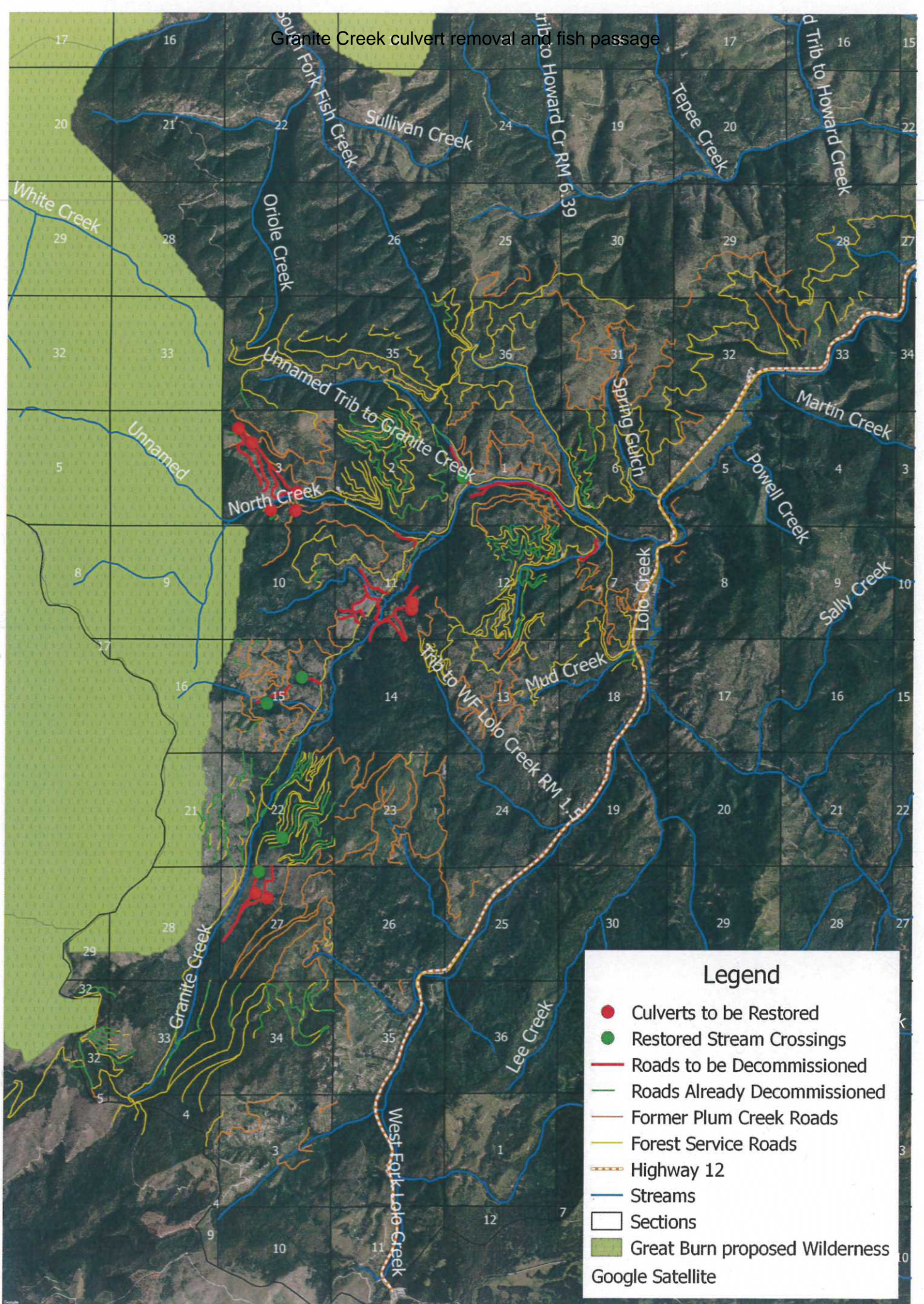
Attachment E...Maintenance and Management Plan

Attachment F...Photos

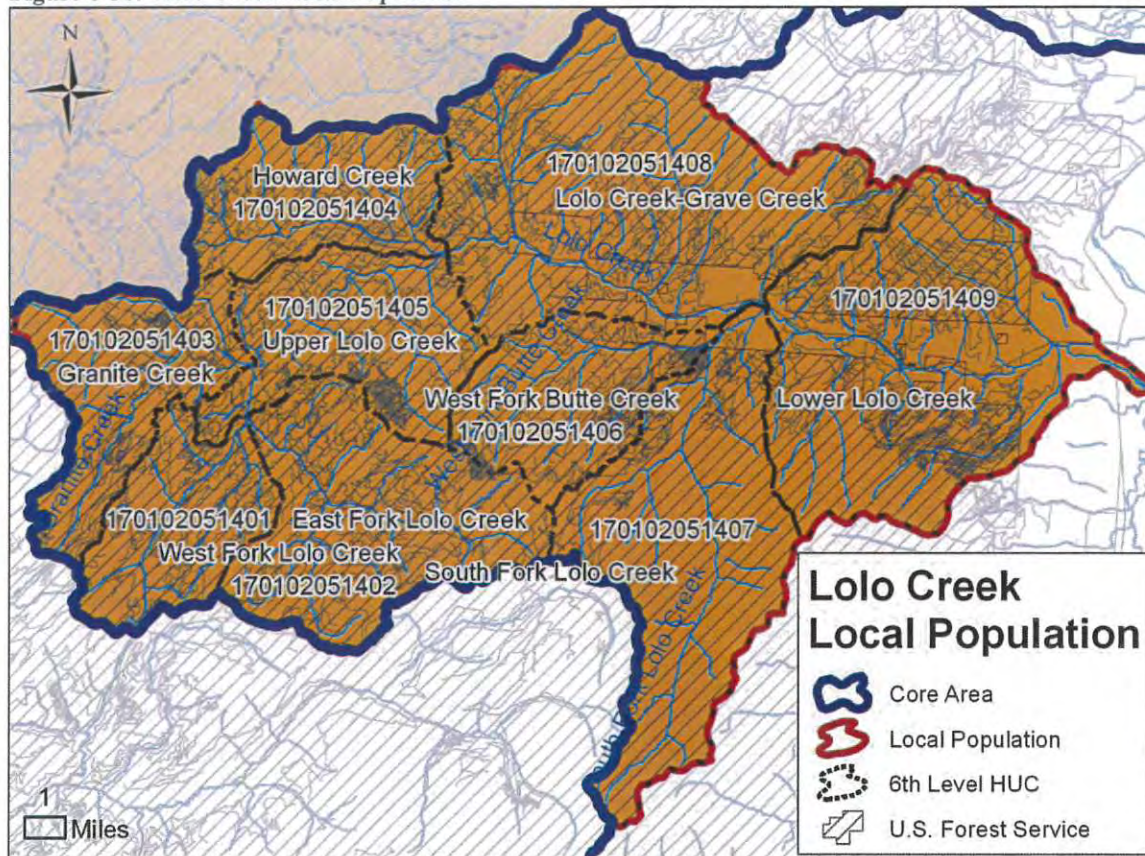
Attachment A



Granite Creek culvert removal and fish passage



Attachment B

Local Population: Lolo Creek**Figure 6-38. Lolo Creek Local Population**

Relative Importance of Population to Core Area (H,M,L): M

Table 6-14. Lolo Creek Local Population Summary

# Spawning Adults	Short-Term (5yr) Pop Trend	Life History, Connectivity	# Known Spawn Reaches	Nonnative Species, threat
0-50 Migratory 250-500 Res	Stable	Resident, Connected	0 (migratory)	High. Lolo Creek and most tributaries contain brook trout, although the South Fork (one of the known tributaries containing bull trout) is relatively free of non-natives in the upper half.
Significance of geographical location		Vulnerability to Climate Change		Unique Population Attributes
High – Lolo Creek is the only large watershed in the lower half of the Bitterroot River. For long-term recovery of bull trout, this watershed seems to be necessary.		Low. This is a large, high elevation watershed in a high precipitation zone, with some of the colder water temperatures on the forest (in tributaries, not the mainstem).		High. The middle and upper South Fork Lolo Creek are unique in that they contain a large patch of relatively pristine habitat with no non-native fish species and high bull trout densities.

Temperature: Temperatures are elevated due to the highway and logging roads. There are opportunities to improve temperature patterns by removing logging roads and improving riparian vegetation and function. There is little opportunity to reduce the effect of Highway 12 on temperatures. However, working with the State DOT to reduce brushing may have some benefit.

Barriers: The only known barrier on streams capable of supporting bull trout is Snowshoe Falls, which is a natural waterfall. There are likely smaller barriers that affect the transport of sediment and large woody debris, but these don't directly affect bull trout connectivity or movement patterns. There is a large diversion on the mainstem of Lolo Creek downstream of the South Fork (MacLay diversion) but fish passage at this site was addressed by MTFWP and TU in 2012.

Pools: The baseline indicator call for pools is FAR. This call is probably accurate for the Lee Creek portion of the HUC. However, the West Fork of Lolo Creek has few pools due to the presence of the highway, and would be rated FUR. There are opportunities to add large woody debris and create large debris jams in many places in Lee Creek.

Sediment: There are numerous opportunities to improve the sediment baseline. A large-scale roads analysis is necessary to identify the relative impacts and benefits of road removal for each road. While sediment levels are elevated in the HUC, the main direct source is the sanding of Highway 12. Cooperative discussions should be initiated to develop alternative practices to reduce sediment from this source.

Most important activities to improve bull trout population:

1. Add large woody debris complexes Lee Creek to create large, complex pool habitat.
2. Identify road related sediment issues and implement actions to eliminate these.
3. Coordinating with FWP to consider management that reduces numbers and distribution of non-native trout if it would benefit bull trout recovery in the Core Area.

Individual HUC6 (w/in Local Pop) attributes and strategies, based on above factors

HUC6 (name and #): East Fork Lolo Creek - 170102051402							
Strategy (Active Restoration, Passive Restoration, Conserve): Active Restoration							
% Forest Service Ownership in HUC: 100%							
Relative Contribution of Habitat in Limiting Local Population: High							
Functional Significance to Local Pop: High							
Indicator	Current Baseline Condition	Proposed Baseline Condition	Timeframe to change baseline	Recovery Priority (1,2,3)	Estimated Cost to Complete	Expectation of population response (H,M,L)	Timeliness of opps (H,M,L)
Temperature	FUR	FAR	10 years	3	\$100,000	H	M
Barriers	FAR	FA	10 years	3	\$100,000	M	M
Pools	FAR	FA	10 years	3	\$100,000	H	H
Sediment	FUR	FAR	10 years	3	\$200,000	H	M

This HUC contains the East Fork of Lolo Creek and Lost Park Creek. Lost Park Creek is a tributary to the East Fork, and supported a resident population of bull trout up until the last several years. This HUC is critical in the long-term recovery of bull trout in Lolo Creek because it contains miles of suitable spawning habitat and the stream systems are relatively large. They also maintain cold water

due to the high elevation, high precipitation zone that the HUC lies in. There are extensive road networks throughout the HUC. Many of these roads have been cost-share roads with Plum Creek, and therefore opportunities to remove them have been limited in the past. However, with the Montana Legacy Project, the Lolo National Forest now owns the roads, and there is an unprecedented opportunity to remove roads and restore both aquatic and terrestrial habitats at a large scale. In addition, there are currently high densities of brook trout in the HUC, and discussions with FWP regarding brook trout suppression seem timely.

Temperature: Temperatures the East Fork are low; however, they are likely elevated above natural due to roads, past grazing, and impacts from riparian harvest. There are opportunities to improve temperature patterns by removing roads and improving riparian vegetation and function. In addition, adding large woody debris to the East Fork and Lost Park Creek would indirectly improve temperature patterns while directly improving pools.

Barriers: Known barriers on LNF administered bull trout streams have been removed over the last several years. However, it is very likely that there are barriers on old Plum Creek roads, and an intensive assessment of these, along with recommendations for removal, is necessary as a first step. Following this, removal of any critical barriers would be important in the short-term.

Pools: The baseline indicator call for pools is FAR. While there is some pool habitat available in low gradient reaches of these streams, there is an overall lack of large, debris created pools that bull trout rely on. With the change in ownership, and the remoteness of the HUC relative to main road systems, there is a prime opportunity to develop large debris jams on both the East Fork and Lost Park Creek. In addition, there are opportunities to add large wood to the channel to allow the natural process of pool formation to occur. This is a high priority project in the HUC.

Sediment: There are numerous opportunities to improve the sediment baseline. A large-scale roads analysis is necessary to identify the relative impacts and benefits of road removal for each road. It is likely that there will be significant opportunity to reduce sediment by significantly reducing road densities in the HUC.

Most important activities to improve bull trout population:

1. Add large woody debris complexes and large individual pieces to the East Fork and Lost Park Creek to create large, complex pool habitat.
2. Determine whether barriers exist on previously owned and managed Plum Creek roads and take actions to address these.
3. Undertake a large-scale roads analysis to determine the minimum road system necessary and maintainable given likely LNF road maintenance budgets. Take actions to eliminate roads that are resulting in added sediment to streams.
4. Coordinating with FWP to consider management that reduces numbers and distribution of non-native trout if it would benefit bull trout recovery in the Core Area.

6.2 East Fork, Granite Creek, Lee Creek, and Lost Park Creek Road Allocations and TMDL

The reduction in human loading for all five streams in Upper Lolo TPA is shown in Table 15. These reductions were derived using the same approach discussed in Section 6.1. As this is a non-point source TMDL, no waste load allocation is necessary. The load allocation for the East Fork, Granite Creek, Lee Creek and Lost Park Creek are based on modeled sediment delivery given planned road BMP improvements and road closures on Lolo National Forest and Plum Creek lands. These load allocations also include estimates of natural background sediment loading as discussed in Section 4.7. As discussed above in Section 6.1, the allocations in the West Fork Lolo Creek were divided between U.S. Highway 12 and forest roads.

Table 15. Load allocations, percent reductions and TMDLs for the Upper Lolo TPA (all values are in tons/year).

Granite Creek	
Natural Load	449
Existing Forest Roads Load	96
Total Load	545
Reduction from Forest Roads	50 (52%)
TMDL	495
Lee Creek	
Natural Load	95
Existing Forest Roads Load	9
Total Load	104
Reduction from Forest Roads	5 (56%)
TMDL	99
Lost Park Creek	
Natural Load	192
Existing Forest Roads Load	21
Total Load	213
Reduction from Forest Roads	9 (43%)
TMDL	204
East Fork Lolo Creek	
Natural Load	596
Existing Forest Roads Load	53
Total Load	649
Reduction from Forest Roads	19 (36%)
TMDL	630
West Fork Lolo Creek	
Natural Load	246
Existing Forest Roads Load	19
Existing Highway 12 Load	425-518
Total Load	690-783
Reduction from Forest Roads	6 (33%)
Reduction from Highway 12	140-171 (33%)
TMDL	543-605

Total Maximum Daily Load Allocations

Achievement of the targets will reduce the annual TMDLs of human-caused fine sediments in these streams by 33 to 64 percent. Through implementation and mitigation efforts outlined in this WQRP, the annual human-caused forest road/Highway 12 sediment input into West Fork Lolo Creek would be reduced by 33 percent from 690-793 tons to 531 - 593 tons. Concurrently, the annual anthropogenic load from forest roads will be reduced in the East Fork Lolo Creek by 36 percent from 53 tons to 34 tons, in Granite Creek by 52 percent from 96 tons to 46 tons, in Lee Creek by 56 percent from 9 tons to 4 tons, and by 43 percent in Lost Park Creek from 21 tons to 12 tons (see Table E -3).

Table E - 3. Upper Lolo Waterbodies' TMDL Load Allocations.

TMDL Allocations <i>in tons per year unless otherwise indicated</i>						
Stream	Road Loads		TMDL (tons/year)	Current Loads from Roads (tons/year)	Current Natural Sediment (tons/year)	Total Current Sediment (tons/year)
	After TMDL Reduction (tons/year)	Percentage Reduction in Road Sediment & Traction Sand %				
West Fork Lolo Creek	12 (Forest roads)	33%	543-605	19 (Forest roads)	246	690-783
	285-347 (Hwy. 12)	33%		425-518 (Hwy. 12)		
East Fork Lolo Creek	34	36%	630	53	596	649
Granite Creek	46	52%	471	96	449	545
Lee Creek	4	56%	97	9	95	104
Lost Park Creek	12	43%	199	21	192	213

Improvement Strategy and Monitoring

The implementation methods include:

- upgrade remaining forest roads to meet Montana Forestry BMPs;
- reclaim forest roads that are surplus to the needs of forest land managers;
- improve inspection and maintenance of existing culverts;
- implement Montana's Forestry BMPs on all timber harvest operations;
- upgrade undersized culverts over time to better accommodate large floods;
- further reduce sediment delivery from U.S. Highway 12, through improved use and maintenance of sediment traps, plowing techniques, and guardrail cleaning; and
- correct those priority fish passage barriers that are significantly affecting the connectivity of native fish habitats.

1.0 BACKGROUND

The following impaired waterbodies are included within the boundaries of the Upper Lolo TMDL Planning Area (TPA) (**Appendix B**):

- East Fork Lolo Creek
- Granite Creek
- Lee Creek
- Lost Park Creek
- West Fork Lolo Creek

Pollutants of concern include the following (**Appendix C**):

- Sediment

Within the Upper Lolo TPA, the most significant pollutant sources include (**Appendix E**):

- Forest roads
- US Highway 12

At the time that the TMDL was written, there were only two major landowners in Upper Lolo TPA: the U.S. Forest Service (Lolo National Forest) and Plum Creek Timber Company. Between 2008 and 2010, ownership of nearly all the Plum Creek land in the Upper Lolo TPA was transferred to the Lolo National Forest through a major land purchase and transfer known as The Montana Legacy Project. The transfer was facilitated by The Nature Conservancy and The Trust for Public Land (The Montana Legacy Project, 2010).

In 2005, the Lolo National Forest signed a Decision Notice, allowing the Forest to implement an Environmental Assessment (EA) with the commitment to remove or replace 22 culverts, decommission 58 miles of roads, and do BMP upgrades on 35 miles of major roads (Greenup and Mickelson, 2010). Most of the watershed restoration that has been completed thus far was completed following the EA for Upper Lolo Watershed Restoration.

The Lolo Watershed Group (LWG) is the main non-governmental organization (NGO) dedicated to watershed restoration in the Upper Lolo TPA. The LWG currently has a Section 319 grant to develop a Watershed Restoration Plan (WRP). The WRP will outline sources of impairment, management actions, estimated load reductions, estimated technical and financial assistance that will be needed for restoration and provide an estimated time frame to complete specific projects. It is expected that this plan will be completed by June 30, 2011 (Sturgis, Wendy, personal communication 11/1/2010).

2.0 TMDL-RECOMMENDED ACTIVITIES

The TMDL document recommends specific restoration activities for addressing sediment within the Upper Lolo TPA. These recommendations were made based on the TMDL load allocations for forest roads and US Highway 12 (**Appendix C**). In addition, the TMDL document made recommendations for fish passage. These recommendations are as follows:

- • Upgrade remaining forest roads to meet Montana Forestry BMPs,
- • Reclaim forest roads that are surplus to the needs of forest land managers,
 - Improve inspection and maintenance of existing culverts,
 - Implement Montana's Forestry BMPs on all timber harvest operations,
- • Upgrade undersized culverts over time to better accommodate large floods,
 - Further reduce sediment delivery from US Highway 12 through improved use and maintenance of sediment traps, plowing techniques, and guardrail cleaning, and,
- • Correct priority fish passage barriers that are significantly affecting the connectivity of native fish habitats.

The TMDL's water quality-monitoring plan has the following objectives:

1. Document water quality trends associated with proposed implementation efforts.
2. Establish additional permanent monitoring sites and collect additional data within the TPA to help better define water quality targets.
3. Monitor progress towards meeting water quality targets.
4. Conduct an adaptive management strategy to fulfill requirements of [the TMDL].

To help achieve these objectives the TMDL document recommends the following types of monitoring activities:

- • Establish permanent bench-marked cross-sections where channel pattern, dimension and profile can be tracked through time using Rosgen Level II parameters (width/depth ratios, entrenchment ratios and sinuosity) and techniques,
 - Collect additional parameters (pool frequency, pool residual depth),
- • Particle size distribution data should be collected using Wolman pebble count procedures through riffles at the established cross-sections,
 - Conduct a road sediment assessment using the Forest Road Survey (FRS) for select watersheds in which recent forest management activities have taken place,
- • Monitor for fish redds and fine sediment, and associated documentation of the results, on a yearly basis,
 - Monitor population status of native salmonid species and report finding to DEQ,
 - Update an assessment of channel conditions and other geomorphic indicators for the whole length of the Lolo Creek Watershed to help determine existing conditions and help track potential future impacts to this important waterbody and to tie in with future downstream TMDL development,
 - Track the effectiveness of BMPs on forest roads and US Highways 12 and other mitigation measures at meeting targets. This could be done by comparing existing instream data to data following upgraded practices and mitigation measures,
 - Develop a database using the Forest Service's significant amount of stream data on potential reference reaches with the TPA to help guide future target setting and evaluation for waterbodies in Lolo Creek and elsewhere in the Bitterroot Basin, and,

3.0 INDICATORS OF PROGRESS

Indicators of progress towards achieving Upper Lolo TMDL targets generally fall into one of three major categories: 1) Restoration, 2) Monitoring, and 3) Planning.

3.1 RESTORATION

The extent of completed restoration work and how it compares to the TMDL load allocations represents a significant indicator of progress towards meeting TMDL targets.

In 2006, Plum Creek demonstrated a 9% reduction in road sediment delivery to Granite Creek between 1998 and 2005 (Sugden, 2010). Reductions between 2005 and 2009, when Plum Creek sold its lands to The Nature Conservancy, were not accounted for in this evaluation. Plum Creek Timber Company completed the sale of lands in the Upper Lolo TPA to The Nature Conservancy by February 2009. At that time Plum Creek had upgraded 95% of the roads in the Granite Creek, East Fork Lolo Creek and West Fork Lolo Creek drainages to meet state BMP standards and decommissioned 0.4 miles of forest roads. Plum Creek also corrected numerous fish passage barriers in cooperation with the Lolo Nation Forest as a cost-share partner (Sugden, 2010).

The Lolo National Forest has done a significant amount of restoration in the Upper Lolo TPA. This restoration work was completed based on the commitment outlined in the 2005 Decision Notice from the Lolo National Forest. Work completed through the spring of 2010 includes the removal of 37 culverts, and decommissioning 64.89 miles of forest roads within the TPA, which exceeds the 2005 commitment for road decommissioning and culvert removal. Work yet to be completed includes BMP upgrades to an additional 35 miles of major roads and improving an additional 11 culverts (Greenup and Mickelson, 2010). The decommissioning of roads should bring forest roads closer to the designated TMDL load allocations for sediment. The removal or replacement of culverts should improve fish passage, and as of 2010, has made over 10 miles of upstream habitat accessible (Greenup and Mickelson, 2010).

The Montana Department of Transportation (MDT) has also taken action to implement the TMDLs for the West Fork Lolo Creek, by decreased application of road sand and increased sand recovery from US Highway 12 during the winter maintenance season. During the 2002-2003 winter maintenance season, MDT estimated that 1,238 tons of road sand were applied to US Highway 12 in the Upper Lolo TPA. This was compared to an estimated 3,300 tons in the 1999-2000 season (Montana Department of Transportation, 2004). In 2008, 778 tons of road sand were applied, while 480 tons were recovered, resulting in 298 net tons of road sand applied to US Highway 12 during the 2008 winter maintenance season (Montana Department of Transportation, 2009). MDT also began using ditch blocks of river cobble and coarse gravel to slow runoff and allow suspended solids to settle out (Montana Department of Transportation, 2004) (Appendix D).

An environmental assessment (EA) was completed in April 2010 for the Kearsarge Module Transport Project which would require modifications to US Highway 12, by Imperial Oil, in the Upper Lolo TPA to accommodate oversized loads (Tetra Tech, 2010). At the time of this evaluation, MDT is not anticipating using additional traction sand on US Highway 12 during the winter maintenance season due to oversized loads. In addition, Imperial Oil's contractor would be required to utilize appropriate BMPs during

4.0 RECOMMENDATIONS FOR ADDITIONAL WORK

Suggestions for additional restoration work are outlined below:

- • Continue to implement recommendations as outlined in the TMDL and summarized in Section 2 of this evaluation; specifically, reclaiming surplus forest roads, and implementing BMPs on forest roads and timber harvest operations. After BMP implementation, consider an assessment that estimates reductions of road sediment.
- • Continue implementation of the Forest Service's 2005 Decision Notice; specifically, culvert replacement and forest road BMPs.
- • Increase monitoring activities as outlined in the TMDL document and summarized in Section 2 of this evaluation, and report findings to DEQ.
 - Complete the watershed restoration plan for the Lolo Watershed.
 - Continue implementation of BMPs from the TMDL for US Highway 12 and report findings to DEQ.
 - Continue to document winter maintenance activities on US Highway 12 by MDT. Submit annual reports to DEQ summarizing these activities and specifically address any changes in management and how those compare to the maintenance activities, BMPs and loads set forth in the TMDL document.

APPENDIX C – TMDL TABLES

Table C-1: (TMDL Table E-1) Waterbodies and Pollution Sources*

Segment Name	Waterbody Number	Length (mi)	Probable Causes	Probable Sources
West Fork Lolo Creek	MT76H005_05	6.8	Other habitat alterations, Siltation	Silviculture- habitat modification-other than bank or shoreline modification hydromodification/destabilization; Highway maintenance and runoff
East Fork Lolo Creek	MT76H005_04	7.4	Other habitat alterations, Siltation	Silviculture-logging road construction/maintenance
Granite Creek	MT76H005_03	8.5	Other habitat alterations, Siltation	Silviculture-logging road construction/maintenance
Lee Creek	MT76H005_07	3.8	Other habitat alterations, Siltation	Silviculture- logging road construction/maintenance; Habitat modification-other than bank or shoreline hydromodification/destabilization
Lost Park Creek	MT76H005_06	5	Other habitat alterations, Siltation	Silviculture- logging road construction/maintenance

*TMDL Table E-1 can be found on page v of the final TMDL document.

Table C-2: (TMDL Table 12) In-stream Targets for the Upper Lolo TPA*

Life Stage & Channel Stability	Parameter	Targets	
		Stream Type**	
Embryo Development	Percent fines < 2 mm	A	22%
		B	16%
		C	21%
Emergence	Percent fines < 6 mm	A	31%
		B	21%
		C	30%

*TMDL Table 12 can be found on page 36 of the final TMDL document.

** Based on Rosgen stream type classification (Rosgen, 1996).

Table C-3: (TMDL Table 13) Performance-Based In-Stream Targets for the Upper Lolo TPA*

Life Stage & Channel Stability	Parameter	Targets
Rearing	Pool Frequency	Established following both reference and response reach data collection*
Channel Structure/Stability	V**	
Channel Structure/Stability	Entrenchment Ratio	
	Width/Depth Ratio	
	Sinuosity	

*TMDL Table 13 can be found on page 37 of the final TMDL document.

** Explanation of data collection is outlined in Section 8-of the TMDL document

Table C-4: (TMDL Table 15) Load Allocations and Percent Reductions*

Pollutant: Sediment Waterbody	Source	Existing Load (tons per year)	Allocation (tons per year)	Load Reduction
West Fork Lolo Creek	Forest Roads, Highway 12	690-783	543-605	33%
East Fork Lolo Creek	Forest Roads	649	630	36%
Granite Creek	Forest Roads	545	471	52%
Lee Creek	Forest Roads	104	97	65%
Lost Park Creek	Forest Roads	213	199	43%

*TMDL Table 15 can be found on page 42 of the final TMDL document.

Lolo Creek Watershed Restoration Plan

Restoration opportunities for the Lolo Creek watershed include:

- Restore water to the drainages by ensuring only valid water rights users are diverting water
- Place fish screens on ditches
- Remove fish passage barriers such as irrigation dams and inadequate culverts to help restore fish movement through the drainages
- Reclaim excess logging roads
- Maintain needed roads using BMPs to reduce sedimentation.
- Ameliorate damage from the history of intensive timber management by
 - Limiting logging in heavily logged areas
 - Restricting logging in riparian zones
 - Recruiting large woody debris to increase habitat complexity in streams
- Educate landowners and developers on the risks of building too near waterways
- Encourage restoration native riparian vegetation along streambanks
- Help landowners facing streambank erosion to develop stabilization plans that do not transfer the stream's energy downstream (such as using soft stabilization techniques rather than riprap)
- Manage irrigation water more efficiently
- Encourage water rights holders who are not using the water to return water rights to instream flow through cooperation with the Clark Fork Coalition
- Restore meanders to Lolo Creek to decrease the effects of channelization on downstream property owners. (This would involve creating bridges or culverts on Highway 12,)

Restoration opportunities and recommendations

Table 4.2. Restoration opportunities (Zelazny, 2004, 2006) by subbasin/tributary/mainstem section.

<i>Bitterroot Subbasin</i>	<i>Creeks of Lolo Creek</i>	<i>Restoration Opportunities</i>
West Fork of Lolo Creek 1401	West Fork of Lolo Creek	1, 5, 6
	Lee Creek Separate in TMDL document only	5, 2
East Fork of Lolo Creek 1402	East Fork of Lolo Creek	2, 5, 6, 11
	Lost Park Creek	1, 2, 5, 6, 11
Granite Creek 1403	Granite Creek	1, 2, 5, 6, 11
Howard Creek 1404	Howard Creek	1, 2, 5, 6, 11
Upper Lolo Creek 1405	Davis Creek	1, 2, 5, 6, 11
	Chief Joseph Gulch	1, 5, 6, 11

Granite Creek culvert removal and fish passage

Lolo Creek Watershed Restoration Plan

<i>Bitterroot Subbasin</i>	<i>Creeks of Lolo Creek</i>	<i>Restoration Opportunities</i>
	Cloudburst Creek	1, 5, 6, 11
	Martin Creek	
West Fork Butte Creek 1406	West Fork Butte Creek (within South Fork of Lolo Creek)	1, 2, 5, 6
South Fork of Lolo Creek 1407	South Fork of Lolo Creek (less West Fork Butte Cr.)	3, 5, 6, 10
Lolo Creek - Grave Creek 1408	Grave Creek and East Fork of Grave Creek	1, 5, 6, 11
	Clark Creek	1, 5, 6, 11
	Bear Creek	1, 2, 5
	Camp Creek	1, 3, 4-6, 11
	Woodman Creek	1-6, 11
Lower Lolo Creek 1409	Sleeman Gulch	little influence on watershed health
	Tevis Creek	1, 2, 3, 10
	Mill Creek	1,3, 4, 9
	John Creek	3, 7, 8
	Mormon Creek	1-6
<u>Key to codes in table:</u> Restoration opportunities as noted in Zelazny (2004, 2006) 1. Recruit large woody debris 2. Remove inadequate/damaged culverts 3. Maintain instream flows 4. Screen irrigation diversions 5. Reduce sedimentation through BMPs 6. Remove unneeded roads 7. Reconnect to Lolo Creek main stem 8. Repair damage to springs 9. Remove illegal diversions 10. Manage livestock grazing 11. Restrict silviculture to areas away from creek (Forest BMPs)		

Lolo Creek Watershed Restoration Plan

Table 6.1 The educational and outreach goals, objectives and proposed tasks.

GOAL:	OBJECTIVE:	TASKS / ACTIVITIES:	PROPOSED PARTNERS	POSSIBLE FUNDING SOURCES
1. Increase public awareness & knowledge of impacts of human activities on the watershed	a. Develop community and school-based educational programs, events and materials that focus on non-point source pollution, BMPs, human impacts on water quality, water quantity, stream health, weeds and wildlife	Determine priorities; define audiences; develop content & messages; decide delivery mechanisms/methods; develop evaluation & assessment plan; collaborate with partners to obtain funding & maximize resources. Examples: field trips, landowner tours, booths at local fairs, publications, newsletters, presentations at public meetings, monitoring programs.	LWG, DEQ, LNF, MslaCD, FWP, RI, CFC, WQD, WEN, BWF, Weed District	DEQ, DNRC, Msla CD, WQD Private foundations
	b. Provide guidance, references, resources and technical assistance to landowners, educators, partners & local organizations to facilitate use of BMPs	Promote & publicize stakeholder agencies/partners and their available resources (permitting, funding and technical expertise) at local meetings, venues & events; provide information on permitting processes; continue to assist landowners with 310 permits, cost-share grant proposals, weed district grants, etc	LWG, DEQ, LNF, MslaCD, FWP, WQD, CFC, DNRC, Weed District	
2. Increase public participation in citizen-based stewardship and conservation activities	a. Develop community and school-based stewardship programs based on high-priority restoration projects that advance overall watershed goals	Develop volunteer recruitment, training, recognition & retention plan; utilize research & activities that foster stewardship; set targets & timeline for volunteer rates; collaborate with partners to publicize & promote activities. Examples: same as above	LWG, DEQ, LNF, FWP, RI, CFC, , Msla CD, WEN, Trout Conservancy, BWF, TU, UM Watershed Health Clinic,	DEQ, DNRC, Msla CD, WQD Private foundations

Chapter 10. Technical Monitoring and Analysis Plan

EPA Element 9. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established in the chapter above.

Upper and Lower Lolo Creek TMDL Planning Areas

To help achieve the TMDL objectives, DEQ_PPA_WQPB_WPS 2010 recommends the following types of monitoring activities:

1. Establish permanent bench-marked cross-sections where channel pattern, dimension and profile can be tracked through time using Rosgen Level II parameters (width/depth ratios, entrenchment ratios and sinuosity) and techniques,
2. Collect additional parameters (pool frequency, pool residual depth),
3. Collect particle size distribution data using Wolman pebble count procedures through riffles at the established cross-sections,
4. Conduct a road sediment assessment using the Forest Road Survey (FRS) for select watersheds in which recent forest management activities have taken place,
5. Monitor for fish redds and fine sediment, and associated documentation of the results, on a yearly basis,
6. Monitor population status of native salmonid species and report findings to DEQ,
7. Update an assessment of channel conditions and other geomorphic indicators for the whole length of the Lolo Creek Watershed to help determine existing conditions and help track potential future impacts to this important waterbody and to tie in with future downstream TMDL development,
8. Track the effectiveness of BMPs on forest roads and US Highways 12 and other mitigation measures at meeting targets. This could be done by comparing existing instream data to data following upgraded practices and mitigation measures,
9. Develop a database using the Forest Service's significant amount of stream data on potential reference reaches with the TPA to help guide future target setting and evaluation for waterbodies in Lolo Creek and elsewhere in the Bitterroot Basin, and,
10. Use data and information to assist the current Clark Fork/Bitterroot model efforts that are being developed.

Additional Monitoring for Lower Lolo Creek public and private ownerships

1. Continue stream flow and temperature monitoring partnership with the Clark Fork Coalition, adding one or two additional sites to collect data below the confluence with the South Fork of Lolo Creek and above the OZ Ranch water right. Monitor for flow and temperature changes as streamside vegetation and stabilization projects are completed.
2. Establish a USGS gauging station near the historical site of the Sleeman Creek station to continue the record of output flow from Lolo Creek. Observe flow rate changes through years to observe the effects of timberland revegetation, excess road removal, stabilization and revegetation projects.
3. Develop a database of ground water quality values from public ground water wells in the Lolo Creek watershed, both historical and ongoing to monitor changes in ground water quality.

Attachment C

Granite Creek culvert removal and fish passage

PLACE GRADIENT CONTROL STRUCTURES AS PER GRADIENT CONTROL DETAILS AND AS DIRECTED BY THE COR AND HYDROLOGIST.

EXISTING CUT SLOPE

DEPOSIT FILL MATERIAL ON DEEP RIPPED ROADBED, TYP.

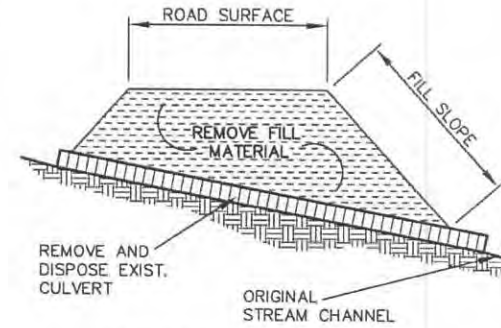
EXISTING FILL SLOPE

PULL FILL MATERIAL BACK TO APPROXIMATE SAME SLOPE AND HEIGHT OF EXISTING TOPOGRAPHY ABOVE & BELOW ROADWAY TO RETURN TO NATURAL STATE.

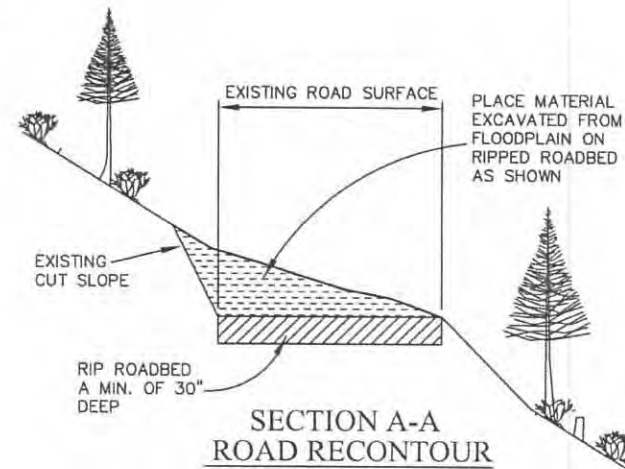
* EXISTING FLOODPLAIN RESTORE FLOODPLAIN AND STREAM CHANNEL IN AREA OF FILL MATERIAL REMOVAL TO APPROXIMATELY THE SAME WIDTH AS EXISTS ABOVE & BELOW ROADWAY

STREAM CHANNEL RESTORATION AREA
LIMITS TO VARY SO THAT ALL OF THE FILL MATERIAL REMOVED FROM THE FLOODPLAIN CAN BE DISPOSED OF BY RECONTOURING THE ROADWAY AN EQUAL DISTANCE ON EACH SIDE OF THE CHANNEL.

STREAM CHANNEL RESTORATION



TYPICAL SECTION-
STREAM CHANNEL



SECTION A-A
ROAD RECONTOUR

NOTES:

1. REMOVE ALL FILL MATERIAL FROM FLOODPLAIN DOWN TO THE ORIGINAL CHANNEL. PLACE REMOVED MATERIAL ON THE DEEP RIPPED ROADBED. DO NOT DEPOSIT MORE OF THIS MATERIAL THAN WAS ORIGINALLY IN PLACE PRIOR TO ROAD CONSTRUCTION. FULLY RECONTOUR THE ADJACENT ROADWAY WITHIN THE STREAM CHANNEL RESTORATION AREA BY PULLING UP THE ROADWAY FILL, PLACING THE FILL ONTO THE ROADWAY, AND CONTOURING IT TO THE ADJACENT ORIGINAL GROUND SLOPES. ADJUST LIMITS OF STREAM CHANNEL RESTORATION AREA SO THAT ALL EXCAVATED MATERIAL IS USED TO RECONTOUR THE ROADBED AS SHOWN ON THIS SHEET.
2. DISTANCES FOR STREAM CHANNEL RESTORATION MAY BE ADJUSTED TO EITHER SIDE OF THE CHANNEL TO ACCOMMODATE OVERLAPPING SECTIONS WHERE STREAMS ARE CLOSE TOGETHER.
3. SCATTER AVAILABLE WOODY DEBRIS ON THE FINISHED SLOPE. PLACE LARGER WOOD AND ROCK ON THE FLOODPLAIN.
4. TREATMENT OF RESTORED CHANNEL WILL INCLUDE FURNISHING AND INSTALLING TEMPORARY AND PERMANENT SEDIMENT CONTROL MEASURES AS DETERMINED NECESSARY BY COR, MULCHING THE DISTURBED AREA WITH WEED FREE STRAW MULCH, AND REMOVING AND DISPOSING OF THE EXTRACTED CMP FROM THE JOBSITE.

EUSTACHE CREEK REHABILITATION

Road Decommissioning & Stream Channel Typical

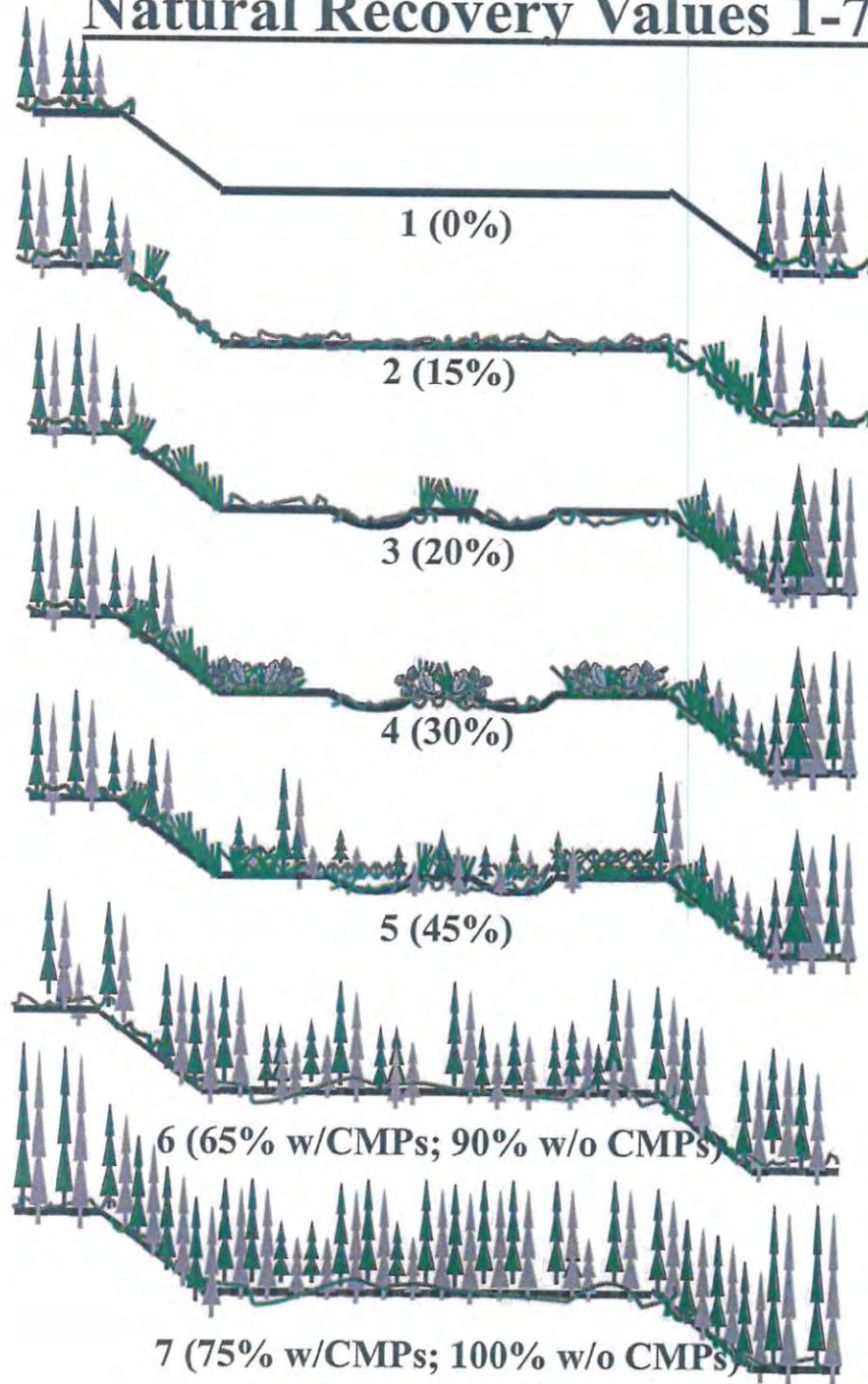
SHEET

14

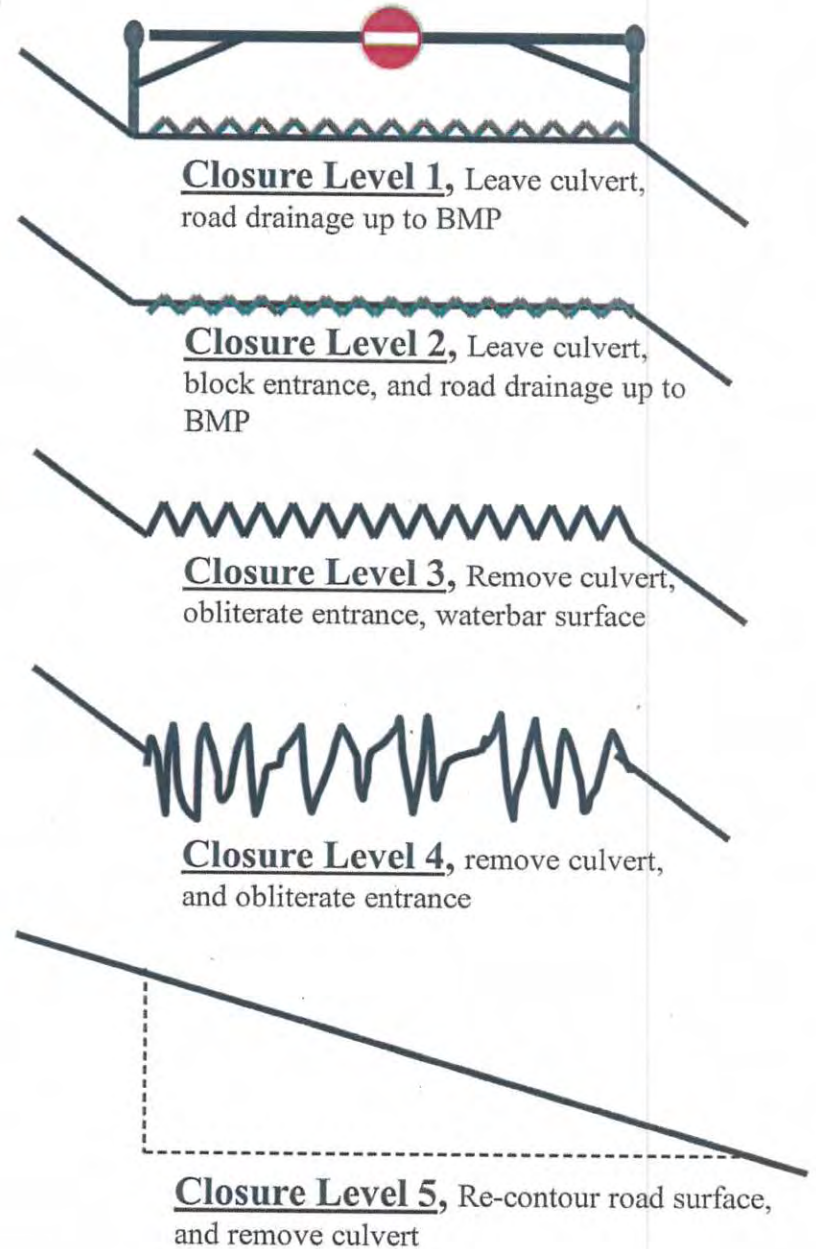
TOTAL

17

Natural Recovery Values 1-7



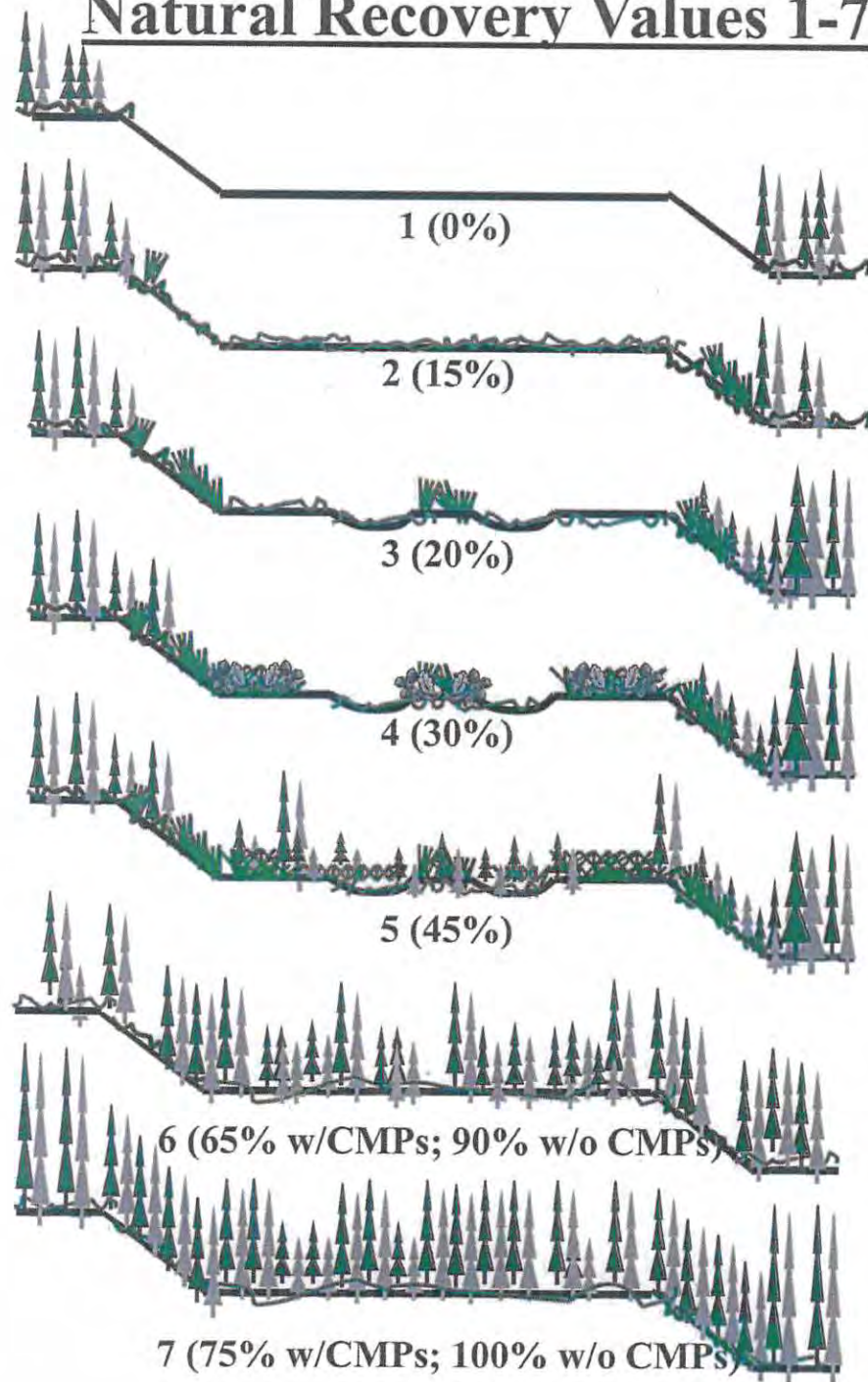
Road Closure Levels



Road Closure Levels

Level Allowed Suffix /E, /P /E Entrance Oblit, /P Path	Typical Device Site specific situation dependant	Typical Treatment All treatments are as-needed.	Status
1	Gate	-Blade, seed, fertilize; Normal drainage (BMP's) -Treat noxious weeds	Remains as NFSR as either long-term or intermittent term service.
2	Gate, guardrail, concrete, earth barrier or re-contour intersection	-Type III dip, waterbars OR outslope -Scarify, seed, fertilize -May scatter slash -Treat noxious weeds	Remains as NFSR as either long-term or intermittent term service with gate, or intermittent term service with barrier.
3-SN Natural Storage	Re-contour intersection (entrance oblit) or rock/earth barrier as needed.	No physical or weed treatment needed, Naturally revegetated and stabilized.	S- Remains as NFSR as intermittent stored service.
3-S Storage		-Waterbar or outslope -Remove CMP's & restore watercourse -Ditch relief pipes can remain w/ waterbars -Light scarify, seed, as needed -Treat noxious weeds	
3-DN Natural Decommission	Re-contour intersection (entrance oblit) or rock/earth barrier as needed.	No physical or weed treatment needed, Naturally revegetated and stabilized.	D- Road is not needed for long term use. Remove from NFSR by route status change to decommissioned. Effectiveness monitored.
3-D Decommission		-Waterbar or outslope -Remove CMP's & restore watercourse -Scarify or Rip 6-12", seed, fertilize as needed -Scatter slash on slopes, -Treat noxious weeds.	
4 Decommission	Re-contour intersection (entrance oblit) or rock/earth barrier	-Waterbar, outslope or selective re-contour -Remove all CMP's & restore watercourse -Rip 12-18", seed, fertilize -Scatter slash on slopes -Treat noxious weeds	Road is not needed for long term use. Remove from NFSR by route status change to decommissioned. Effectiveness monitored.
5 Decommission	Re-contour	-Re-contour entire prism -Remove all CMP's and restore watercourses -Seed and fertilize -Scatter slash on slopes -Treat noxious weeds	Road is not needed for long term use. Remove from NFSR by route status change to decommissioned. Effectiveness monitored.

Natural Recovery Values 1-7



NRV Definitions

Natural Recovery Value 0% – Road may be driven with passenger vehicles. Road surface contains little vegetation due to routine grading and use. Cuts and fills have exposed soil, light grass, and brush with little protection against erosion.

Natural Recovery Value 15% – Road may be driven with high clearance vehicles with normal driver observation. Road surface contains grass sod or sparse brush and trees. Cuts and fills have little exposed soil, are vegetated with grass and brush and young trees, and have adequate protection against erosion.

Natural Recovery Value 20% – Road may be driven with high clearance vehicles with moderately-high driver observation. Road surface is well vegetated with grass sod. Road center and shoulders are vegetated with young brush and trees. Cuts and fills have no exposed soils and are well vegetated with brush and young trees with good protection against erosion.

Natural Recovery Value 30% – Road may be driven with high clearance vehicles or OHVs with high driver observation. Road surface is well vegetated with grass sod and brush. Wheel tracks are still compacted with only grass or sparse brush vegetation. Road center and shoulder are vegetated with mature brush and young trees. Cuts and fills have no exposed soil and are well vegetated with brush and trees with very good protection against erosion.

Natural Recovery Value 45% – Road may not be driven by any vehicles. Road surface, is well vegetated with brush and young trees. Wheel tracks are still evident yet are fully vegetated with brush and young trees. Cuts and fills have no exposed soil and are well vegetated with trees and brush with very good protection against erosion.

Natural Recovery Value 65 or 90% – Road may not be driven by any vehicles. Road surface is very well vegetated with trees and brush and shallow humus layer established. Road profile is deteriorating and road surface is less visually dominant. Cuts and fills have trees and other vegetation like adjacent forested environment.

Natural Recovery Value 75 or 100% – Road may not be driven by any vehicles. Road surface and cuts and fills have humus, trees and other vegetation like adjacent forested environment. Road profile has deteriorated and road profile is no longer visually dominant.

Attachment D

Granite Creek culvert removal and fish passage



United States
Department of
Agriculture

Forest
Service

Lolo National Forest

Building 24, Fort Missoula
Missoula, MT 59804-7297
406 329-3750

Date: September 1, 2017

Michelle McGree
Future Fisheries Program Officer
Montana Fish, Wildlife and Parks
1420 East 6th Ave
PO box 200701
Helena, MT 59620-0701

Dear Ms. McGree,

The Lolo National Forest strongly supports the Clark Fork Coalition's grant application for the Granite Creek watershed restoration work. The Clark Fork Coalition is applying for grant funds from the Future Fisheries grant program to work with the US Forest Service to protect and restore bull trout in the Granite Creek watershed by reducing human-caused sediment sources and improving habitat fragmentation in this watershed. Primary goals are native fish connectivity and fulfilling TMDL responsibilities to reduce sediment deliveries in these reaches. The Lolo National Forest earnestly fulfilled initial work to conserve bull trout and Westslope cutthroat, and to address TMDL responsibilities, including 11 culvert replacements and nearly 100 miles of road decommissioning; however, more work is necessary to address needs on newly acquired industrial forest lands.

The Clark Fork Coalition and the Lolo National Forest have been working on cooperative projects for several years, including decommissioning almost 14 miles of road in the East Fork of Lolo Creek, establishing nearly 80 permanent temperature monitoring stations across the entire Lolo National Forest, collecting stream discharge data with regards to instream flow management, working to understand feasibility of beaver habitat and potential reintroduction, and a completed climate change watershed vulnerability assessment. The Lolo National Forest continues to provide funding to these efforts when possible. As such, the Clark Fork Coalition and the Lolo National Forest have a track-record of proven success and are now continuing the partnership with the Granite Creek project. Our ongoing focus for this partnership in Granite Creek is due to its significance to cold water native fisheries and bull trout particularly.

Funds from the Future Fisheries Program are essential to completing on-the-ground reclamation projects and will be matched by federal and private funds.

Thank you very much for the funding opportunity and your continued work for conserving natural resources. Please do not hesitate to contact me if you have any questions.

Sincerely,

Al Hilshey
ACTING FOR DISTRICT RANGER

Al Hilshey/Acting Missoula District Ranger



Caring for the Land and Serving People

Printed on Recycled Paper





September 13, 2017

To Whom It May Concern:

I am writing on behalf of WestSlope Chapter of Trout Unlimited in order to show our support of the Granite Sediment Reduction Project.

We have always been in favor of the decommissioning of roads and their associated culverts that have historically added sediment to the Clark Fork and surrounding watersheds. We have supported many such projects financially as part of our work. When a large-scale well planned project such as this one has objectives that include monitoring for project effectiveness and outreach to educate members of the community and government agencies, we couldn't be more pleased.

The main goals of WestSlope Chapter of Trout Unlimited are to conserve, protect and restore our area's cold-water fisheries and their watersheds. These goals also include educating the public on the importance of clean cold water and healthy fisheries. For these reasons WestSlope Chapter of Trout Unlimited supports The Granite Creek Sediment Reduction Project both philosophically and financially.

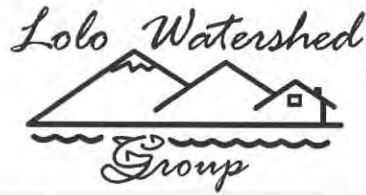
Sincerely,

A handwritten signature in blue ink, appearing to read "Mark", is written over a horizontal line.

Mark Kuipers

President, WestSlope Chapter of Trout Unlimited

Granite Creek culvert removal and fish passage



September 13, 2017

To Michelle McGree
Future Fisheries Program Officer
Montana Fish, Wildlife and Parks
P.O. Box 200701
Helena, MT 59620-0701

RE: Support for Clark Fork Coalition Future Fisheries project proposal

Lolo Creek has been classified as impaired due to sedimentation throughout many tributaries and the main stem of Lolo Creek. In the upper reaches of Lolo Creek, sedimentation sources include forest roads, some of which are no longer needed, with failing erosion control structures, and failing or undersized culverts. The Lolo Creek Watershed Restoration Plan specifies opportunities for improving the Lolo Creek cold-water fisheries and aquatic life and for reducing sedimentation. Those opportunities include removing roads that are no longer needed and removing inadequate culverts.

The project proposed by the Clark Fork Coalition will address sedimentation and fisheries concerns identified in the Lolo Creek Watershed Restoration Plan, and works towards completing the plan's suggestions for restoration projects on 25 miles of forest roads. The Lolo Watershed Group supports this project proposal as a means to work toward meeting goals set in the Lolo Creek WRP.

Sincerely,

A handwritten signature in cursive script that reads "Kascie Herron".

Kascie Herron
Board President
Lolo Watershed Group
P.O. Box 1354
Lolo, MT 59847
Lolowatershed.org

Attachment E

Upper Lolo Creek Sediment Reduction and Fisheries Connectivity Project

H. Land Management and Maintenance Plan

All land management and maintenance plans are addressed under mandates, standards, and guidance as required by the Lolo National Forest Plan and Inland Native Fish Strategy, in addition to other Executive Orders. These provisions require the Forest to “meet or exceed” State requirements, which manifests commonly in land management planning and implementation that far exceeds protections offered by other means. For additional and/or specific details, please reference the Forest Plan and/or Inland Native Fish Strategy. In addition, these tributaries are also delineated by the U.S. Fish and Wildlife Service within the Bull Trout Conservation Strategy as critical habitat, which also provides additional protections for current and future management. This project lies within the Lolo National Forest’s Management Area 16, which is currently designated as timber harvest. There is no merchantable timber, and will not be any for the next 50 years or more, in the areas accessed by the roads proposed for decommissioning. There are no plans by the forest service to open these roads up after decommissioning occurs, especially with the level that the roads will be decommissioned to (Level 5, full recontour). In terms of maintenance there should not be any needed due to the removal of all associated culverts and complete reconstruction of the road prism back to native state.

STREAM RESTORATION AGREEMENT

This Agreement dated June 5th, 2015 between the Clark Fork Coalition and the Lolo National Forest (Landowner) is entered into to authorize restoration work on Upper Lolo Creek and its tributaries as it flows on or adjacent to Landowner's property. This restoration project is located in Section(s) 27, Township(s) 11N, Range(s) 23W in Missoula County. Work performed will be as described in the Future Fisheries application submitted by the Clark Fork Coalition (Attn: Jed Whiteley) and dated 11/25/14.

This rehabilitation project is intended to effect stream improvements, which are enduring in nature. Therefore the Landowner agrees to protect and maintain the rehabilitation investment for a minimum of 20 years, subject to available funding. All future management activities will be in compliance with the Lolo National Forest Land Management Plan and in accordance with any existing and/or future rights.

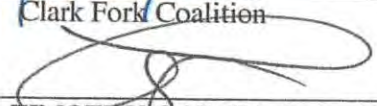
Notwithstanding the forgoing, it shall not become the Landowner's responsibility to repair or replace project improvements should they become damaged, changed or destroyed by natural means. The landowner guarantees ownership of the above-described land and warrants that there are not outstanding rights that will interfere with this cooperative agreement. Further, if land ownership is transferred, this agreement will remain valid for the period of this agreement.

This agreement may be terminated in writing by either party by providing thirty (30) days advance notice. If terminated by the Landowner or the restoration site is degraded due to purposeful or negligent activities of the Landowner; the property owner agrees to reimburse the Clark Fork Coalition for the costs of the needed repair work or the original cost of the project.

Improvements placed on National Forest System land at the direction of either of the parties, shall thereupon become property of the United States, and shall be subject to the same regulations and administration of the Forest Service as other National Forest improvements of a similar nature. No part of this instrument shall entitle the Clark Fork Coalition to any share or interest in the project other than the right to use and enjoy the same under the existing regulations of the Forest Service. The Clark Fork Coalition does not assume jurisdiction over the property as a result of this agreement. The Landowner retains all normal property right including the right to control trespass.



Clark Fork Coalition



TIMOTHY GARCIA, Forest Supervisor,
Lolo National Forest

June 5, 2015 (KIC)
Sept. 18, 2015

Date

June 5, 2015

Date

Approved for Legal Content:

FWP Attorney

Attachment F

Granite Creek Photos

Photo 1: Sediment deposits in Granite Creek mainstem



Photo 2: Erosion due to undersized culvert overtopping



Photo 3: Sediment flows to creek



Photo 4: Road erosion



Photo 5: Unvegetated road cut next to stream

